

Off-Road Equipment Replacement Program

Note for Reviewers: This preliminary draft language includes commentary that describes the intent of some paragraphs. This commentary, noted in *italics*, is a guide for reviewers and will be removed in later drafts. Language should reflect general consensus from fleet surveys and Work Group meetings to date.

Program Overview

The off-road equipment replacement program is intended to obtain emission reductions by replacing old, high polluting equipment with newer, cleaner equipment. This source category will provide real emission benefits by retiring the high polluting equipment earlier than would have been expected through normal attrition. The Carl Moyer Program approaches equipment replacement cautiously for two reasons: 1) equipment replacement occurs on its own without incentive funding, and 2) paying for more than just the engine may not result in the best value for state funds. However, for some equipment, replacing the engine only, (i.e., repowering) is not possible and for other, the diminished value of the old equipment may not justify investing significant funds for engine replacement. ARB's intent is to design this program in such a way that it does not pay for equipment replacement that would have occurred anyway, but is accessible for accelerated turnover of old equipment.

A. General Criteria

- Off-road equipment replacement projects are eligible for up to a maximum of ??? percent of the total equipment purchase costs (minus any repairs needed on used equipment) up to the cost-effectiveness limit. Retrofits are eligible for up to 100 percent of total costs up to the cost-effectiveness limit.
Staff is looking for comments on potential maximum funding amounts. Note that projects are subject to the Moyer cost-effectiveness cap (currently at \$14,300 per weighted ton of reductions)
- The maximum project life can be found in Table XXX.
Staff is currently working on determining appropriate project lives for equipment. Project life is based on the remaining useful life of the old equipment.
- Funding is available for equipment utilizing the following engines:
 1. Large spark ignited engines larger than or equal to 19kW (25 horsepower). Engines above 25 horsepower but with a displacement of less than or equal to one liter may be eligible for funding on a case-by-case basis.
 2. Diesel engines greater than 25 horsepower.

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- The low emissions technology must be certified or verified and meet the current NOx, PM and/or ROG requirements.
- Equipment must be maintained in accordance with manufacturer specifications.
- Engines participating in the ABT program that are certified to FELs higher than the applicable emission standards, as designated on the Executive Order, are ineligible to participate in the Carl Moyer Program.
- The certification emission standard and/or Tier designation for the engine must be determined from the Executive Order issued for that engine, not by the engine model year. Executive Orders for off-road engines may be found at <http://www.arb.ca.gov/msprog/offroad/cert/cert.php>
- Engines that are participating in the "Tier 4 Early Introduction Incentive for Engine Manufacturers" program, as detailed in Title 13, CCR, section 2423(b)(6), are ineligible for Carl Moyer Program funding.

B. Existing (Old) Equipment Requirements

The following criteria are the draft minimum criteria for the old equipment that will be replaced. These criteria were developed to ensure that the equipment resides and is being used in California and is a functioning piece of equipment.

- Equipment from any vocation or fleet size are eligible for funding provided the participant submits conclusive documentation as detailed below.
- The old equipment must have an uncontrolled engine.
Uncontrolled engines are those that were manufactured prior to engines standard regulations. For diesel engines these are pre-Tier 1 engines, for LSI engines, these are pre-2002 model year for less than 1 liter engines and pre-2001 model year for greater than 1 liter engines.
- *This bullet is to provide evidence of extended residency and use in California. Some of this documentation, such as fuel records, may also be used for evidence of usage for cost-effectiveness calculations (fifth bullet in this section). Staff realizes that this redundancy may be confusing and is looking for input on clarifying the bullets.*

The participant must have owned and operated the old equipment in California for the previous two years. The participant must be able to provide documentation of the following:

- 1) Bill of sale for the old equipment and at least one of the items in the following list or
- 2) Two years of documentation for at least two items in the following list:
 - Tax depreciation logs
 - Property tax records

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- Equipment insurance records
 - Bank appraisals for equipment
 - Maintenance/service records
 - General ledgers
 - Fuel records specific to the old equipment (To be used as evidence of California residency the fuel records must also identify the equipment owner.)
 - Other documentation approved by ARB.
- The old equipment must be in operational condition to qualify for funding. The participant must be able to provide documentation for the previous year for at least one of the following:
 - Maintenance/service records
 - Revenue and usage records that identify operational, standby, and down hours for the equipment
 - Routine inspections which document the operating condition of the old equipment (OSHA or workplace required)
 - Other documentation approved by ARB.

In addition, the district must conduct a pre-inspection of the old equipment prior to funding to verify the operational status of the equipment.

- *This documentation requirement is designed to provide evidence of usage for cost effectiveness calculations. After discussions with stakeholders, staff is also considering a possible option of having default usage values for fleets that are unable to provide adequate documentation. Determining the proper default values may be difficult because they can vary depending upon equipment utilization.*

Participants must submit documentation of annual usage of the old equipment for the previous two years. The participant must be able to provide documentation of at least one of the following:

- 1) Hour meter reading log collected at minimum of once per year from an installed and fully functioning hour meter or historical fuel usage documentation specific for the old equipment. Documentation must include fuel logs, purchase receipts, or ledger entries. Or
- 2) At least two items from the following list proving old equipment is being used by the fleet:
 - Revenue and usage records that identify operational, standby, and down hours for the equipment
 - Employee timesheets linked to specific equipment use
 - Preventative maintenance records tied to specific hours of equipment use
 - Repair work orders specific to the equipment
 - Six months of tracking normal equipment usage with a functional, tamper proof hour meter with prior district approval
 - Other documentation approved by ARB.

- The replacement of two (or more) pieces of old, like equipment with one piece of replacement equipment is eligible for funding. Each piece of old and replacement equipment must comply with all of the appropriate criteria. The replacement equipment must execute the same job as the old pieces of equipment. For baseline cost-effectiveness calculation, the annual emissions of the two pieces of old equipment are combined. For the replacement equipment cost-effectiveness calculation, the usage of the two pieces of old equipment is combined for the replacement equipment usage.

C. Replacement Equipment Requirements

The following criteria are the draft minimum criteria for the new equipment that is being purchased. These criteria were developed to ensure that the new equipment is the cleanest available equipment and will comply with current and future regulatory requirements.

All replacement equipment must meet the following conditions before funding is awarded to the participant.

- The new or used replacement equipment must have an engine meeting the current Model Year California emission standard. If a specific piece of equipment can not be purchased with an engine meeting the current Model Year emission standard at the time districts obligate funds, then equipment with an engine meeting the previous Model Year emission standard may be purchased. Documentation that equipment with an engine meeting the current Model Year emission standard is unavailable must be provided to the district.
- The replacement equipment must execute the same job as the old equipment (i.e. replacement of an agricultural tractor with another agricultural tractor).
- The horsepower rating for the replacement equipment engine must not be greater than 125 percent of the original manufacturer rated horsepower (baseline horsepower) for the old equipment engine. In limited situations, the district may approve a greater than 25 percent increase in horsepower. Documentation must be provided that the new equipment will be executing the same job as the old equipment and either like equipment in the original horsepower range was not available or the higher horsepower equipment will result in equal or less annual emissions than the new equipment in the original horsepower range.
- Purchasers of new diesel equipment must purchase a minimum of a three-year or 5000 hours warranty for the replacement equipment. Purchasers of new large spark-ignited equipment must purchase a minimum of a one-year or 2000 hours warranty for the replacement equipment. *(The warranty requirements between diesel vs. LSI are split because LSI typically doesn't*

offer a longer standard warranty for new equipment.) The warranty must cover parts and labor. Purchasers of used, late model year equipment must purchase the remaining manufacturer warranty, if available, on the equipment. No Carl Moyer Program funds will be issued for maintenance or repairs related to the operation of the equipment. The participant takes sole responsibility for ensuring that the equipment is in operational condition throughout the agreement period. Warranty documentation must be provided to the district.

- The participant must maintain replacement value insurance coverage for the project life. Documentation of insurance must be provided to the district. In the event that equipment needs to be replaced under this provision, the new equipment must meet, at a minimum, the emission standards of the equipment under contract.
- The participant may obtain financing to assist in the purchase of replacement equipment. Documentation of financing must be provided to the district.
- Future annual hours of equipment operation for determining emission reductions must be based only on readings from an installed and fully operational hour-meter. Future annual fuel usage for determining emission reductions must be based on fuel logs, purchase receipts or ledger entries specific to the funded equipment.
- A functioning hour meter, or other approved usage monitoring device, must be maintained on all equipment for projects that document hours of operation as means of calculating emission reductions and cost-effectiveness.
- Usage on the replacement equipment must not be less than seventy percent of the old equipment. Districts have the ability to evaluate special circumstances and provide flexibility to applicants in meeting their usage requirements. The equipment and its usage may be subject to audit by district or ARB staff.
- ARB Verified Diesel Emission Control System (or retrofit): An ARB-verified retrofit is required, when available, on all replacement equipment.
 - Retrofit projects that control PM must use the highest level ARB-verified technology available at obligation of funds for the equipment being retrofitted
 - The retrofit must be installed prior to equipment delivery to the participant and must stay in operation on the replacement equipment for the project life.

- The cost of the device, and all filters and maintenance of the filters needed during the project life, may be paid for with incentive funding provided it meets the cost-effectiveness limit.
- On a case-by-case basis, districts may request an exemption from the retrofit requirement from ARB for extenuating circumstances, such as safety concerns that are corroborated by the retrofit manufacturer or through the process established in section 2449(e)(8) of the Off-Road Regulation.
- Data-logging may be conducted on the old equipment to determine the proper retrofit device needed for the replacement equipment. Data-logging may be paid for with incentive funding, if it meets the cost effectiveness limit.
- If an ARB-verified retrofit is not available, then the retrofit is not required.
- Additional information on retrofit systems is included in Appendix F - Retrofit Emission Control Systems and on ARB's website at <http://www.arb.ca.gov/diesel/verdev/vt/vt.htm>.

D. Existing Equipment Destruction Requirements

Consistent with other Carl Moyer Program category requirements, in order to be eligible for Carl Moyer funding the old engine/equipment must be destroyed. The following criteria are the draft minimum criteria for the destruction of the old equipment. Staff is looking into providing district flexibility on the timing of equipment destruction.

- The old equipment must be destroyed within 90 days of being replaced. The old equipment needs to be destroyed or rendered useless by punching a hole in the engine block and by compromising the structural integrity of the equipment. This may be achieved by cutting the structural components of the equipment or some other manner approved by the district. Documentation of the equipment's destruction must be provided to the district within ten days of destruction.
- Destruction of the equipment may occur either at a district approved salvage yard or another facility in conjunction with a district salvage inspection.
- If districts use a district approved salvage yard, the following conditions must be met:
 - Certify that the old equipment will be delivered to a qualified salvage yard within 30 days of receipt of the old truck.

- The contract must include the make, model, year, serial number, engine make, engine serial number, and the date the equipment is expected to be delivered.
- It is the district's responsibility to ensure that the salvage actually occurs and to obtain the completed Certificate of Equipment Destruction or other similar documentation.

E. District Administrative Requirements

Districts must establish off-road equipment replacement policies and guidelines before they can fund off-road equipment replacement projects. This includes agreements with local dealerships and salvage yards, reimbursement procedures, the development of contracts, etc. The ARB must approve district off-road equipment replacement policies and guidelines prior to district implementation of an off-road equipment replacement category. Districts may work with dealers to streamline the program. Any potential partnerships between districts and dealers must be identified in the off-road equipment replacement policies and guidelines. The policies and guidelines must identify the district's process for oversight and review of dealer identified tasks. The district's off-road equipment replacement guidelines must address all of the above criteria as well as the following:

- Calculation of funding amounts must be based on the average of two years of documented equipment usage. Fleet averages cannot be used.
- Incentive funding can only be used to pay for items essential to the operation of the equipment.
- Dealer must provide the district with proof of sale of the replacement equipment.
Dealers for the purpose of this program are anyone who sells equipment including private parties.

- Districts are responsible for completing a pre-inspection on the old equipment, a post-inspection on the new equipment, and a salvage inspection on the old equipment if equipment destruction is not conducted by a district approved salvage yard. Pre-inspections may be done by a district approved dealer.

- 1) Pre-inspection must verify the operational condition of the old equipment. The pre-inspection should verify, at a minimum, the following items:
 - Tires in usable condition
 - Steering wheel operational
 - Equipment able to start up and move backwards and forwards
 - Buckets, blades, rollers, etc. are working
 - Undercarriage structurally sound

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- Fuel tank in usable condition
- No parts stripped
- Equipment not vandalized.

Clear photographs of the old equipment must include the following views:

- Right Side - hood down.
- Front - hood down.
- Left Side - hood down.
- Equipment serial number
- Engine - left side.
- Engine - right side.
- Engine Serial Number - either tag or stamp on block.
- Equipment ID, if available.
- Rear.

2) Post-inspection of the new equipment must be completed prior to disbursement of funds. The post-inspection must include clear photographs of the following views:

- Right Side - hood down.
- Front - hood down.
- Left Side - hood down.
- Equipment serial number
- Engine - left side.
- Engine - right side.
- Engine Serial Number and Engine Information – tag.
- Equipment ID, if available
- Rear.
- Diesel Emission Control Device (if available).
- Hour meter reading.

3) Salvage-inspection must be completed prior to disbursement of funds. Salvage inspection must include clear photographs of the destroyed engine block and cut frame rails. In addition, the following picture views must be taken:

- Equipment serial number
- Engine side view.
- Engine serial number either stamped on the block or on the tag.
- Destroyed engine block either in-frame or out of frame as specified in the Administration Chapter of these Guidelines.
- Cut structural components
- Other views dependent on the method of equipment destruction

F. In-Use Off-Road Diesel Vehicle Regulation

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As this regulation is structured, the vast majority of fleets will start out complying with the BACT requirements and, as they turnover and retrofit their equipment, will eventually meet and comply with fleet average targets in later years. In determining eligibility for Carl Moyer Program funding, it is assumed that all fleets are complying on the BACT path.

- Projects are subject to the general program criteria listed above.
- Funding is available for achieving reductions required by the regulation at least three years prior to regulatory compliance deadlines and for reductions not required by the regulation.
- Large Fleets
The first compliance date for large fleets is March 1, 2010 so very limited funding opportunities exist. For example, a large fleet that requests funding for a project that will be installed and in operation by February 28, 2009, the fleet is unable to receive Carl Moyer Program funds for the equipment that would have to be in compliance with the rule by March 1, 2012 but will be able to receive funds for equipment whose compliance dates are later. To ensure that projects are surplus to regulatory requirements, fleets are only eligible to receive funding once after July 26, 2007. Because of the high initial investment required to take advantage of the Carl Moyer Program funding, it is likely not practical for most fleets.
- Medium Fleets
The first compliance date for medium fleets is March 1, 2013 so some opportunities for funding exist. Medium fleets can apply for Carl Moyer Program funding for projects that will be installed and in operation by February 28, 2010. For projects that will be installed and in operation after March 1, 2010, fleets could receive incentive funds in a manner similar to the example given for large fleets. To ensure that projects are surplus to regulatory requirements, fleets are only eligible to receive funding once after March 1, 2010.
- Small Fleets
The first compliance date for small fleets is March 1, 2015 so greater opportunities for funding exist. Small fleets qualify for incentive funds in two ways:
 1. Compliance with the PM requirement begins on March 1, 2015 and will require retrofit of up to 20 percent per year of the total horsepower in the fleet. Small fleets will be eligible for incentive funds to pay for the full cost of retrofits that are installed and in operation by February 28, 2012 subject to the cost-effectiveness cap. After March 1, 2012, fleets could receive incentive funds in a manner similar to the example given for large fleets. To ensure that projects are surplus to regulatory

requirements, fleets are only eligible to receive funding once after March 1, 2012.

2. Small fleets have no NOx requirements in the regulation and are therefore not required to turnover their equipment. As such, funding for NOx and ROG reductions will always be eligible for incentive funds. This means that fleet owners can apply for Carl Moyer Program funds to repower their equipment and will be eligible for grants based only on NOx and ROG reductions. Since the Carl Moyer Program requires retrofit on all repower projects if verified and available, up until February 28, 2012 both the repower and the retrofit are eligible for funding. After February 28, 2012, the retrofit will still be required but must be paid for by the fleet owner.

- Captive attainment areas fleets are only subject to the PM requirements of the regulation regardless of fleet size and are therefore only required to retrofit their equipment. As such, funding for NOx and ROG reductions will always be eligible for incentive funds. This means that fleet owners can apply for Carl Moyer Program funds to repower their equipment and are eligible for grants based only on NOx and ROG reductions. The retrofit is still required but must be paid for by the fleet owner.
- Certain fleets operating in Districts that are participating in the Surplus Off-Road Opt-In for NOx program may be required to apply for incentive funds. Fleets should contact their local air district to determine if this program is available.
- Parties interested in applying for funding for this equipment should contact the Carl Moyer Program staff at the local air district for more detailed information. For more detailed information on potential funding opportunities, see the In-Use Off-Road Diesel Vehicle Regulation, Carl Moyer Implementation Charts at *insert web page here*.
- Regulatory information can be found at:
<http://www.arb.ca.gov/msprog/ordiesel/ordiesel.htm>

G. Regulation for Cargo Handling Equipment at Ports and Intermodal Rail Yards

The high initial investment that will be required by fleets to participate and the lack of current technology that is cleaner than what is required by the regulation makes it unlikely that fleets will be able to take advantage of Carl Moyer Program funds. Funding may be available for retrofits in certain circumstances.

- Projects are subject to the general program criteria listed above.

- Funding is available for achieving reductions required by the regulation at least three years prior to regulatory compliance deadlines and for reductions not required by the regulation.
- Parties interested in applying for funding for this equipment should contact the Carl Moyer Program staff at the local air district for more detailed information. For more detailed information on potential funding opportunities, see the Mobile Cargo Handling Equipment Regulation, Carl Moyer Implementation Charts at *insert web page here*.
- Regulatory information can be found at:
<http://www.arb.ca.gov/msprog/offroad/cargo/cargo.htm>

H. Off-Road Large Spark-Ignition Equipment Regulation

The regulation requires reductions in fleetwide HC+NO_x emissions. The fleet size is determined by aggregating an operator's equipment in the state of California. The regulation impacts owners of fleets of four or more forklifts and/or four or more non-forklift pieces of equipment.

- Projects are subject to the general program criteria listed above.
- Funding is available for achieving reductions required by the regulation at least three years prior to regulatory compliance deadlines and for reductions not required by the regulation.
- **Large Fleets**
Large fleets are defined as those with more than 25 pieces of LSI forklifts. Regulatory requirements for large fleets would begin in January 1, 2009 with subsequent deadlines to follow on January 1, 2011, and January 1, 2013. Only fleets that have met the 2011 fleet average can apply for Carl Moyer funding for projects that will be installed and in operation three years prior to the January 1, 2013, deadline.
- **Medium Fleets**
Medium fleets are defined as those with 4 to 25 pieces of LSI forklifts. The regulatory deadlines for medium fleets are January 1 for the years of 2009, 2011, and 2013. As with large fleets, only fleets that have met the 2011 fleet average can apply for Carl Moyer funding for projects that will be installed and in operation three years prior to the January 1, 2013, deadline.
- **Non-forklift Fleets**
Non-forklift fleets of three or more pieces of equipment are also required to meet three fleet average compliance deadlines in 2009, 2011, and 2013. These fleets are eligible for funding only if the fleets have met the 2011 fleet

average and the funded projects will be installed and in operation three years prior to the January 1, 2013, deadline.

- Fleets with equipment not subject to the off-road LSI in-use fleet regulations are eligible for funding.
 1. Agricultural crop preparation non-forklift equipment (new purchases and retrofits for 1990+ forklifts)
 2. Non-forklift LSI equipment such as aerial lifts, lawn & garden tractors, commercial turf equipment, mining and construction equipment, crushing and processing equipment
 3. Equipment in small fleets (1 - 3 forklifts and/or 1 - 3 non-forklifts)
- Parties interested in applying for funding for this equipment should contact the Carl Moyer Program staff at the local air district for more detailed information. For more detailed information on potential funding opportunities, see the LSI Equipment Regulation Carl Moyer Program Implementation chart available through your local district or at **[insert webpage here]**
- Regulatory information can be found at:
<http://www.arb.ca.gov/msprog/offroad/orspark/orspark.htm>.

I. Senate Bill 467 (Lowenthal)

Senate Bill 467 requires the ARB to establish grant criteria in the Carl Moyer Program guidelines for the replacement of off-road internal combustion equipment with specifically zero-emission equipment that can perform the same work. The equipment being replaced must be owned by the applicant, still have some remaining life, and is required to be scrapped. *ARB staff is developing specific criteria to address the requirements of SB 467 for inclusion in this program.*